

Appl. No. 10/065,189
Amdt. dated November 23, 2004
Reply to Office action of October 27, 2004

Amendments to the Claims:

1. (Currently amended) A method of fabricating a contactless channel write/erase flash memory cell comprising:
5 providing a multi-level substrate;
forming a tunnel oxide layer on the multi-level substrate;
forming a shallow P ion region in said multi-level substrate;
forming a floating gate on said multi-level substrate;
forming a deep P ion region on one side of said floating gate in said multi-level
10 substrate;
forming a first N ion doped region within said deep P ion region and a second N ion doped region on the other side of said floating gate in said multi-level substrate;
simultaneously forming a first isolating oxide layer on said first N ion doped region
and a second isolating oxide layer on said second N ion doped region;
15 forming a dielectric layer on said floating gate, said first isolating oxide layer and second isolating oxide layer; and
forming a control gate over said floating gate over said floating gate; and
forming at least one bit line metal contact away from any of the N ion doped region
and the deep P ion region of the memory cell wherein said metal contact
20 penetrates through said isolating oxide layer and junction between said N ion doped region and said deep P ion region.
2. (Original) The method of claim 1 wherein said multi-level substrate comprises:
an N substrate;
25 a deep P well region over said N substrate; and
an N well region over said deep P well region.

3. (Canceled)

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4. (Currently amended) The method of claim [[3]]_1 wherein said metal contact further penetrates through said N ion doped region and into said deep P ion region.
- 5 5. (Currently amended) The method of claim [[3]]_1 further comprising forming a metal contact to electrically short-circuit the exposed surfaces of said first or second N ion doped region and said deep P ion region.
- 10 6. (Original) The method of claim 1 wherein said shallow P ion region and said deep P ion region are doped with boron.
7. (Original) The method of claim 1 wherein said first and second N ion doped regions are doped with phosphorus or arsenic.